

Attorney Docket No. P70518US0  
Application No. 10/531,261

Amendments to the specification:

*Rewrite the title of invention:*

A Staircase Lift and a Guide Rail for Such a Stairlift Lift

*Rewrite page 9, 2<sup>nd</sup> complete paragraph, and the paragraph bridging pages 9 and as:*

The moveable frame 4 includes a platform 5 for accommodating a disabled person in a wheelchair. Alternatively, or in addition to the platform 5, a foldable seat 51 may be provided for an assistant to the person in the wheelchair or for transporting an elderly or otherwise weakened person up or down the staircase, see fig. 13.

Figure 3 a first embodiment of the invention is shown. In fig. 3 is shown a cross-section of the guide rail 2 having a sub-frame 9 of the carrier frame 4 provided therein. A pinion wheel 7 engages a rack 20 provided on the lowermost section of the guide rail 2. The pinion wheel 7 is provided with teeth 7a shaped in the geometrically correct curved form in the radial direction of the pinion 7, but provided with a circular cross-section. Correspondingly, the rack 20 is formed in a strip of material, preferably nylon or similar polymeric material, extending along the underside of the guide rail with a row of circular holes 7b. The pinion 7 is preferably made of steel. Since the guide rail 2 is intended for use as a banister, the persons using the banister of the staircase might come into contact with the rack as they support themselves by means of the banister. By using a polymer-based material for the rack, the necessity for lubrication of the drive system is avoided

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which is advantageous as this, in turn, means that no grease or oil is deposited or present on the guide rail rack.

*Rewrite page 10, 2<sup>nd</sup> and 3<sup>rd</sup> complete paragraphs, as:*

As shown in the cross-section of the guide rail  $\underline{2'}$  in fig. 3, the pinion 7 engages the rack 20 on the underside of the guide rail  $\underline{2'}$ . The guide rail  $\underline{2'}$  is a hollow profile, preferably an aluminium profile provided with internal support surfaces 21, 22, 23, 24, 25 inside its cavity. On the sub-frame 9, a carrier member 8 and a top guide member 10 and a lower guide member 11 are provided. In the cavity of the guide rail  $\underline{2'}$ , power supply rails 26 may preferably be provided cooperating with brushes 27 or similar sliding electrical connection means for providing power supply to the electric drive motor on the carrier frame 4.

Inside the guide rail  $\underline{2'}$ , a carrier member 8 is positioned to engage a support surface 25 immediately above the rack 20 and the pinion 7. The carrier member 8 rest on the internal support surface 25 of the cavity of the guide rail  $\underline{2'}$  and carry the weight of the frame and its load - possibly together with co-operating carrier members engaging the lower second guide rail 3 and carrier members on the guiding means 12, 13.

*Rewrite page 12, paragraphs 2 and 3, as:*

In fig. 7, a drive system according to the invention is shown in action. In this situation, the guide rail  $\underline{2'}$  is bent, e.g. due to a change in slope of the staircase. The first set of guide members

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10, 11 is lifted upwards, causing the universal joint 18 downwards due to the movement control lever 15 which is pivotally mounted in the swivel joint 16. When the universal joint 18 is moved out of its initial position (the initial position being its "straight line" position, as shown in figs. 4 and 5), the second movement control lever 14 is loaded. However, since the trailing, second guiding means 12 of the second lever 14 are in contact with the guide rail 2 2', the second swivel joint 17, over which the second movement control lever 14 is pivotally mounted to the sub-frame 9, is forced downwards causing the entire sub-frame 9 to rotate slightly, including the carrier members 8 and the pinion wheel 7. In this way, the pinion wheel is kept in an intermeshing engagement with the rack 20 on the underside of the rail 2 2'.

In fig. 6, a similar situation of movement is illustrated in relation to a turn, e.g. as the staircase lift is mounted in a swinging staircase, or the guide rail 2 2' follows a corner of a staircase. In this situation, the first set of rollers 10 is moved sideways towards the direction of the turn, e.g. to the left, causing the first movement control lever 15 to pivot in the swivel joint 16 and move the universal joint 18 outwards in the turn which forces the second movement control lever 14 to move the sub-frame 9 outwards due to the swivel joint connection of the second movement lever 14 to the sub-frame 9. Hereby, the tooth or teeth 7a of the pinion 7 engaging the rack is/are kept in alignment in the rack 20, also during a change in the direction of travel of the frame.

*Rewrite page 13, paragraph 4, through page 14, 1<sup>st</sup> complete paragraph, as:*

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In fig. 8, a second embodiment of the invention is shown. This embodiment is particularly advantageous as the position of slide support surfaces 22, 24 and 25. In this embodiment, the sub-frame 9 is suspended from the guide rail 2 2', which is mounted by the mounting means 28. The upper slide shoe 10 10' engages the vertical support surface 22 and the lower slide shoe 11 11' engages the lower vertical support surface 24, whereas the carrier slide shoe 8 8' engages the horizontal support surface 25. The support surfaces 22, 24 and 25 are integrally formed on the inside cavity of the generally U-shaped guide rail 2 2' (see fig. 14).

As shown in fig. 14, the guide rail profile 2 2" provided with a cavity 29 in which the support surfaces are provided. On the outside of the profile 2 2", side mounting receiving means 35 are integrally provided. The outside surface is otherwise provided with a generally smooth surface making the guide rail profile 2 2" a proper staircase banister. In the cavity 29, the upper guide member support surface 22 is provided in the uppermost outer portion of the profile 2 2", whereas the lower guide member support surface 24 is provided in the lower innermost section close to the side mounting means and the profile opening 33. The horizontal carrier member support surface 25 is provided in the cavity 29 in between the lower guide support surface and the side mounting receiving means 35 which are formed on the outside of this profile wall portion. As it may be seen from fig. 3 as well as fig. 14, the sub-frame 9 is suspended from the guide rail 2 2". When the horizontal carrier member support surface 25 engages the innermost support surface 25, the lower guide member 11 is forced against the lower support surface 24 and the upper guide member 10 is brought in engagement with the upper guide support surface 22. By providing the support surfaces

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in these relative positions in the cavity of the profile  $\geq 2"$ , the risk of "opening" the profile by bending the outer profile wall section opposite the side mounting. The guide rail profile according to this embodiment is thus particularly advantageous for accommodating the internally arranged carrier support means for driving the staircase lift.

On the inside of the outer profile wall, the profile cavity 29 is provided with indentations 31, 32 for the accommodation of power supply rails 27 which cooperate with associated brushes or similar power connecting means 26 on the sub-frame 9. At the profile opening 33, a set of covering brushes or sealing lips 34 may be provided in order to prevent dirt from entering into the profile cavity 29. Beside the opening 33 is arranged a track 30 for accommodating the toothed rack 20, said track being integrally formed in the profile  $\geq 2"$  just below the horizontal support surface 25.